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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/010,846	12/05/2001	Manjunath Narayanaswamy	ADAPP207	7426

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EXAMINER

DINH, NGOC V

ART UNIT	PAPER NUMBER
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2187

DATE MAILED: 04/06/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/010,846

Applicant(s)

NARAYANASWAMY ET AL.

Examiner

NGOC V DINH

Art Unit

2187

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 15-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7-14 is/are allowed.
- 6) ☒ Claim(s) 1-6 and 15-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is responsive to Amendment filed 02/05/04 in which claims 1, 5-6, 15-16 are amended.

Applicant's previous arguments are moot with regard to claims 1-20 in view of the new rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 15-20 are rejected under 35 U.S.C 103(a) as being unpatentable over Korst PN 6,415,328, and in view of well known features of which Official Notice is hereby taken.

2. As per claim 1:

Korst teaches a method for distributing read commands to disks associated with a redundant array of inexpensive disks (RAID) system [col. 8, lines 10-15], comprising:

establishing a first and second counter, the first counter associated with a first disk drive, the second counter associated with a second disk drive [col. 17-18; col. 19, line 1-40]; receiving a command from an operating system; determining if the received command is a read command [col. 5, lines 64-67; col. 14, lines 50-55]; examining the first and second counters if the received command is the read command [col. 5, line 64 to col.6 line 6], the examining including, determining which of the first and second counters is a lower value counter or if the first and second counters are of equal value [col. 4, lines 39-45; col. 20, 18-30];

selecting a drive associated with the lower value counter [col. 20, lines 18-30; col. 4, lines 39-45]. Korst does not teach if the counters are of equal value selecting a first drive.

However, it would have been obvious to one having ordinary skill in the art would readily recognize that when the counters of both drives are of equal value, then it does not matter

which drive to be selected for next read request. Selecting the first drive when the counters are equal is no more than a matter of an engineering choice, as long as both drives share equal workload;

incrementing the lower value counter or the first counter if the counter are of equal value [col. 4, lines 33-55];

directing the read command to the drive associated with the lower value counter. Korst does not teach if the counters are of equal value directing the read command to the first drive.

However, this is no more than a matter of an engineering choice as mentioned above.

Korst does not teach the RAID is a mirroring system.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further include the RAID mirroring system (RAID 1) into Korst disk array system in order to protect against the loss of information in the event of a disk drive failure, mirroring can be employed to ensure continued access to data. Furthermore, RAID level 1 mirroring is a well-known technology in the pertinent art for providing redundancy of data and fault tolerance in order to improve reliability and protect the data in data storage systems.

3. As per claims 2-4:

With respect to claim 2, Korst teaches providing a multithread environment for receiving multiple commands from the operating system [col. 4, lines 23-35; col. 5, lines 47-67].

With respect to claim 3, Korst teaches directing the read command to the drive associated with the lower value counter, includes: sending the read command to a drive queue of the drive associated with the lower value counter [col. 4, lines 15-20; col. 4, lines 23-55].

With respect to claim 4, Korst teaches the drive queue holds 256 commands [table 1, 2, col. 17-18].

4. As per claim 6:

Korst teaches the method operation of determining if the received command is a read command includes evaluating a command descriptor block associated with the command [col. 5, line 64 to col. 6, line 30].

5. As per claims 15-20:

Claims 15-20 basically are the apparatus that carry out the operating method in claims 1-4. Accordingly, claims 15-20 are rejected for the same reasons as set forth in claims 1-4

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Korst PN 5,440,7096,415,328, in view of Jai Menon, Jeff Riegel and Jim Wyllie 1995 IEEE 1063-6390

2. As per claim 5:

Korst teaches the claimed limitations as mentioned above.

Korst does not teach the RAID system is a software and hardware RAID implementation.

Menon-Jeff Riegel-Jim Wyllie teaches the RAID system is a software and hardware RAID implementation [abstract; page 411-412].

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include Menon-Jeff Riegel-Jim Wyllie's teaching into Korst computer system in order to improve RAID performance and reliability [Menon-Jeff Riegel-Jim Wyllie; introduction section].

Allowable Subject Matter

6. As per claims 7-10, 11-14:

Claims 7-10, 11-14 are allowed over the prior art of record.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoc Dinh whose telephone number is (703) 305-3023. The examiner can normally be reached on Monday-Friday 8:30 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald A. Sparks, can be reached on (703) 308-1756. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

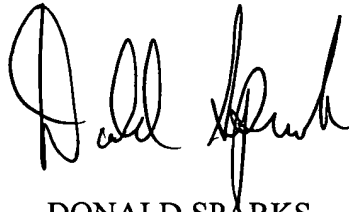


NGOC DINH

Patent Examiner

ART UNIT 2187

April 02, 2004



DONALD SPARKS

Supervisory Patent Examiner

Technology Center 2100